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Established 1835 — Railway & Commercial Gazette

Vol. CCXLI No. 6163 — LONDON, OCTOBER 2, 1953 — PRICE 8d

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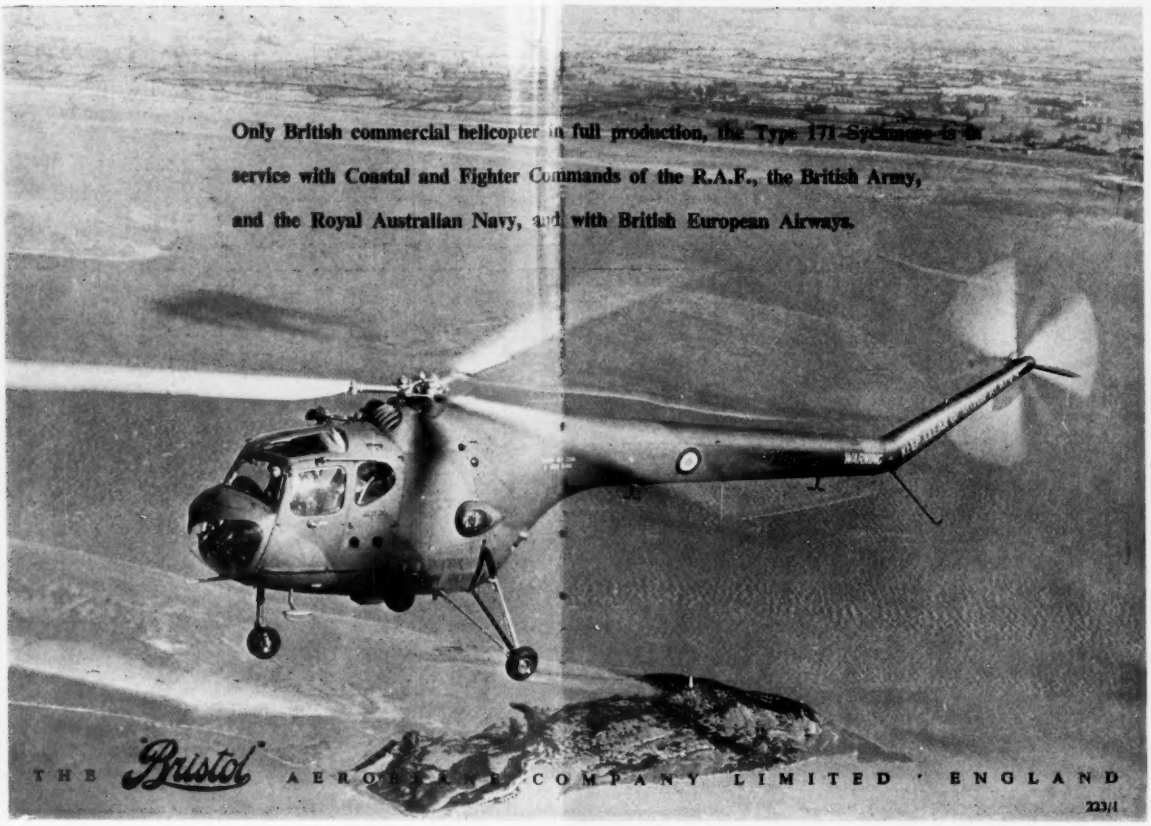
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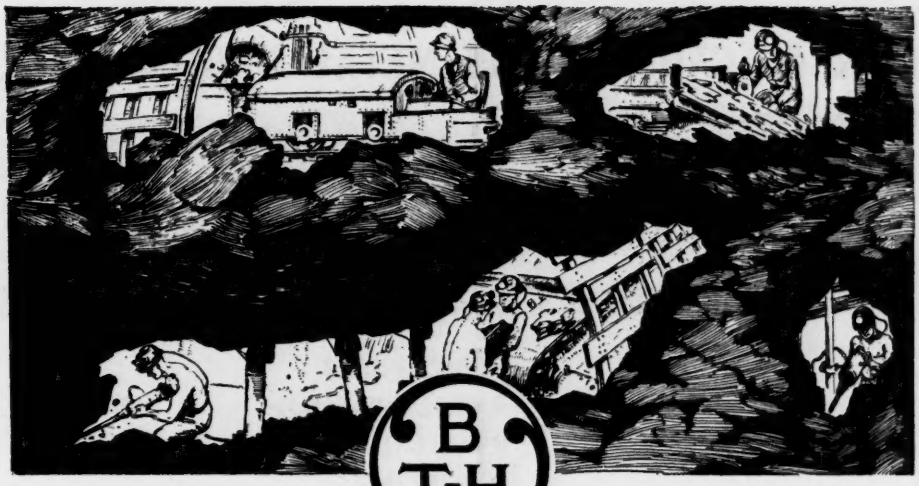

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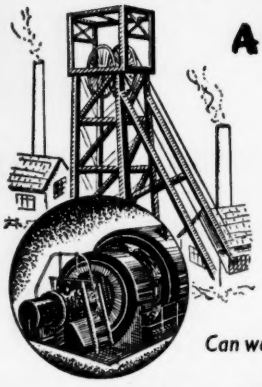

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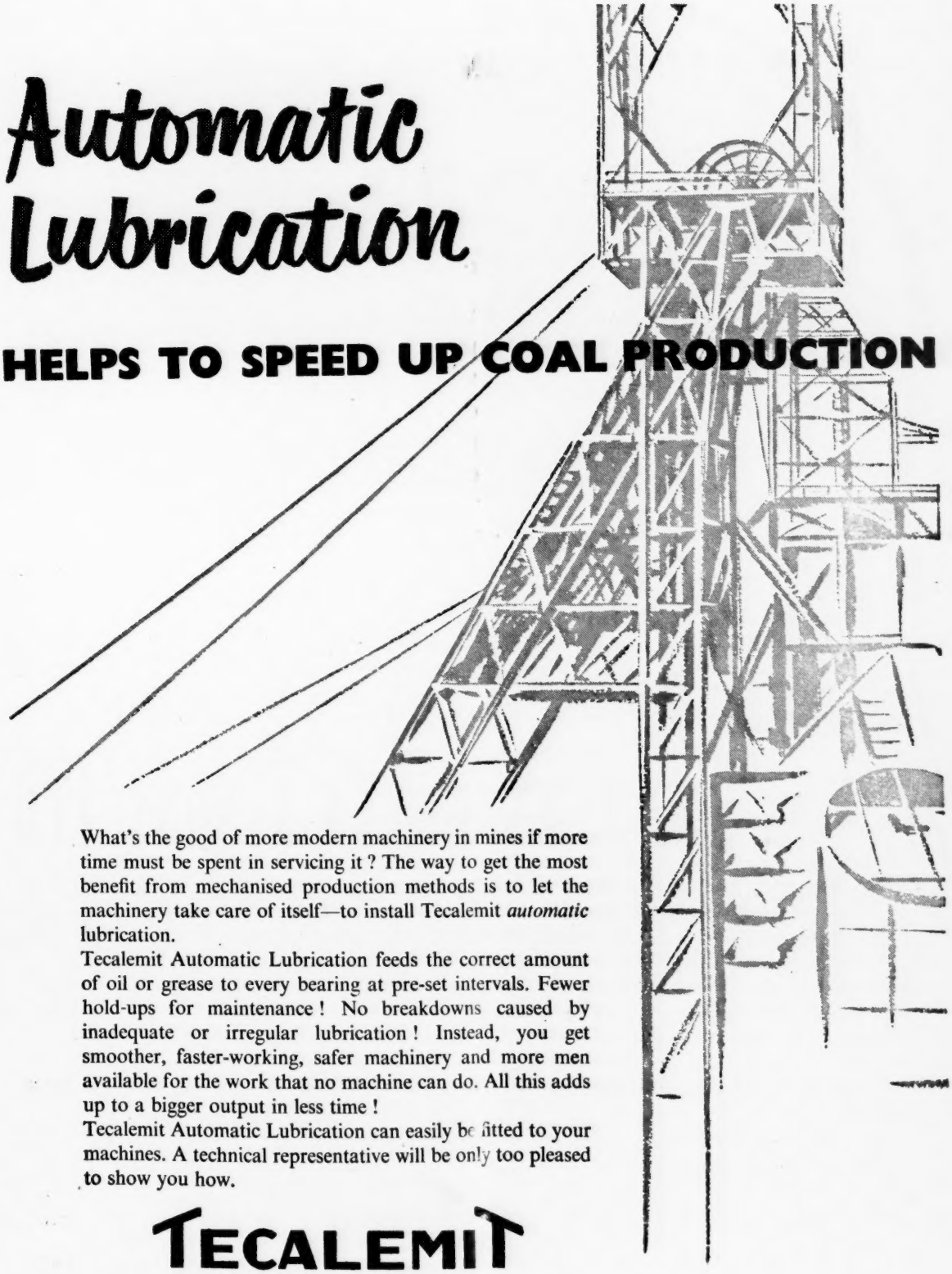

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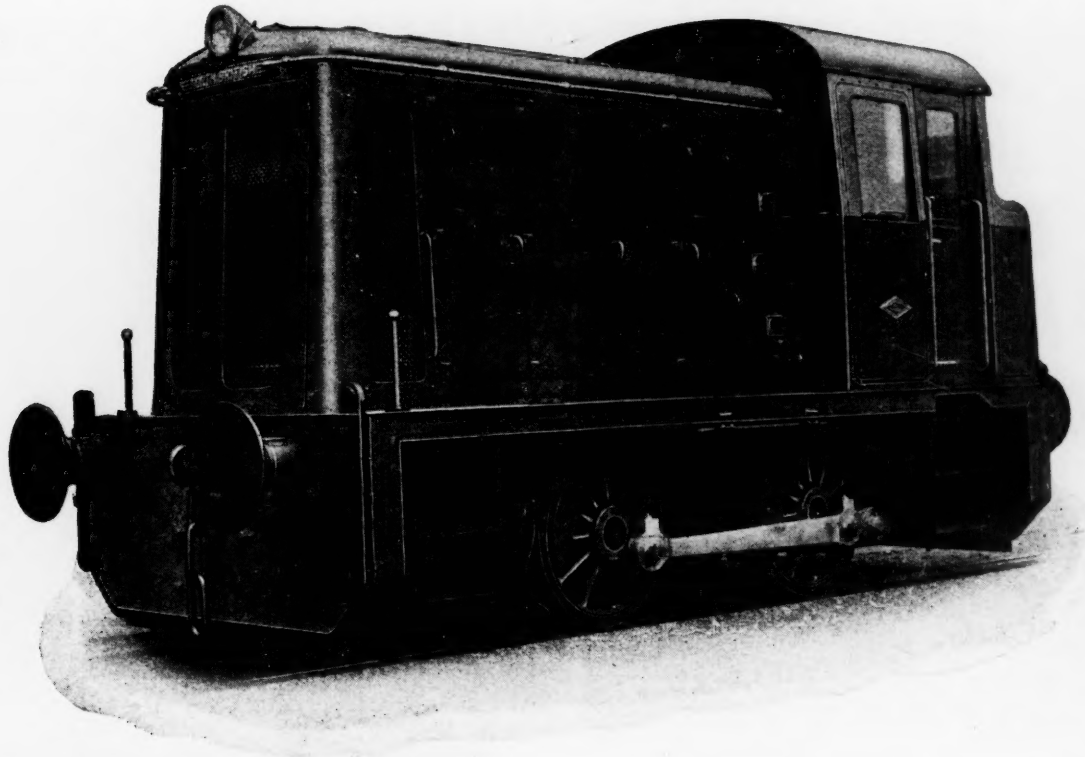

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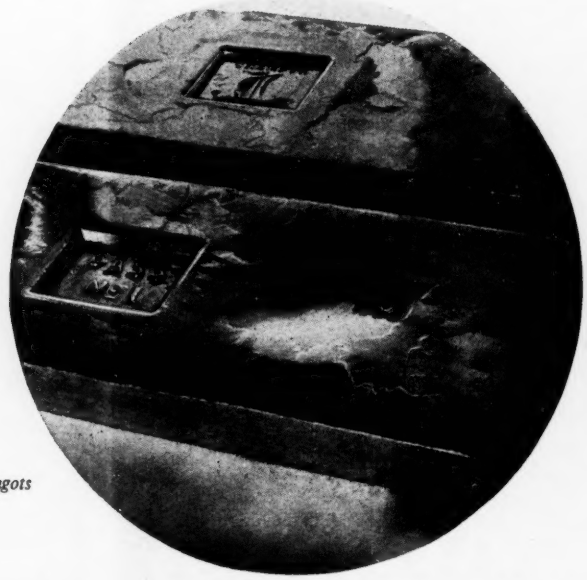

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Established 1835

Vol. CCXLI No. 6163 LONDON, OCTOBER 2, 1953 PRICE 8d

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Published by The Mining Journal Ltd., at 15 Wilson Street, Moorgate, London, E.C.2. MONarch 2567 Subscription £2 per annum

NOTES AND COMMENTS

Famines and Gluts

The far flung discussions on remunerative prices and threats of closing down mines, with all that implies, are evoking many opinions more particularly in the U.S.A., regarding the desirability either of attempting to rectify a top heavy position by arbitrary interferences and controls, or also of leaving the outcome to the operation of the natural economic play of supply and demand.

Once again a cry for "conservation of mineral resources" is being raised in the U.S. buttressed by the familiar argument that reliance on overseas supplies of metals and minerals in time of war would prove impracticable—though the pattern of the next world war (if it comes) would probably be very different from our previous experiences. Such a disaster seems much less imminent to-day and this view has clearly influenced the U.S. Administration in retarding stockpiling.

However, reflection has led to some more considered expressions of opinions on the conservation of minerals in the light of historical experience. Conservation was first authoritatively advocated in the U.S. before World War I associated, if our memory be correct, with the name of Mr. Pinchot. Minerals are a wasting asset and obviously a time must come when this or that metalliferous mineral will become scarce and give rise to fears of a "famine," especially with the vastly increased rate of exhaustion which has developed in more recent years. Thus it is computed that copper production in the past 50 years has increased six times, zinc and iron ore three times, and white lead has doubled.

Mr. A. Fletcher, in a recent address to a joint meeting of Canadian Institutes, referred to some of the Cassandra-like predictions of recent times instancing in particular opinion voiced in the publications of the Canadian I.M.M. in 1920, the *Gas Age Record* of about same date, the U.S. National Resources Committee in 1932, the I.M.M. in 1946, and forecasts in the Paley Report of the probable U.S. position in 1975. Many other similar forecasts may be recalled by our readers, especially in regard to tin in the '30s. How does it come about that these have been falsified by events?

The answer is the adaptability of the human mind in devising methods by which mineral, previously uneconomic, can be converted into "ore"—i.e. "mineral gotten at a profit"—and quite recently the ever widening availability of materials which can become substitutes for the older limited range of useful metals. The latter recourse has been extensively discussed in the Paley Report, encouraged no doubt both by the generous application of Government finance to promote research into mineral prospecting and discovery and by the co-operation of big mining undertakings which this enlightened policy has encouraged. Much of this initiative has still to result in effective economic application but attempts to correct falls in price by artificial measures of control such as limiting output, quotas, buffer stocks, cartels and the like will only have the effect of stimulating the search for, and production of, substitutes—since consumers will always seek what promises in the long run to be the cheapest efficient raw material in a highly competitive world.

Believing that there are ample ore resources in the world, Mr. Fletcher maintains, "There can be no shortage of any commodity in a market where supply and demand function, for the price of the article will provide automatically a mechanism by which any maladjustment is corrected." This viewpoint was well expressed in an address to the American Mining Congress delivered last week by the Assistant Secretary of the Interior, Mr. Felix Wormser, who is reported as saying, "I do not believe that we have reached the point of diminishing returns as far as domestic mineral resources are concerned, even though our mining industry is confronted with depletion of many high grade ores; and must look forward for ways and means of handling lower grade deposits in order to remain in business. I grow impatient with the defeatist attitude upon this subject because I firmly believe that we have only scratched the surface in locating mineable materials and that the technology of handling these materials is still in its infancy."

The danger of measures improvised on a short term view is illustrated by the violent change in official Government views in the past 12 months or so away from a belief in the existence of serious and permanent metal shortages, which their physical buying policies so greatly accentuated, to the present fears, at least in the case of tin, of disastrous overproduction.

It is our belief, based on much experience, that intervention by governments, often swayed by unstable popular

clamour into deliberate interference with the working of the law of supply and demand, fails to allow time for natural forces to work out their solution before they receive a wrench in a new direction and a situation becomes further complicated by the introduction of new influences.

Welsh Tinplate Industry

The recent decision of the Steel Company of Wales to re-open nine tinplate mills which had been closed earlier in the year marks another stage in the somewhat chequered history of the tinplate industry since the end of the war.

Until the opening of Margam and Trostre at the end of 1952, Ebbw Vale was the only continuous strip mill operating in this country; all other tinplate supplies were drawn from the old hand mills. Throughout this period demand greatly exceeded supply; at home tinplate remained on allocation to domestic consumers, while overseas the tinplate manufacturers were able to command premium prices for their products.

The opening of the new strip mill at Trostre was therefore eagerly awaited by tinplate consumers, although it was always recognized that adequate supplies of cold reduced plate will not be available until the completion of the second stage of the development plan with the opening of a second strip mill at Velindre in 1957. In the meantime the output of the hand mills must remain an essential, if less important, proportion of total supply. Unfortunately for all concerned, however, in the event the opening of Trostre happened to coincide with a recession in demand for tinplate, both at home and overseas. For the first time in 12 years the industry found itself faced with reluctant buyers. The fall in demand, moreover, bore particularly heavily on the old hand mills, which are not only less economic in operation but produce an inferior product to the cold reduced plate of the modern strip mills. In these circumstances the tinplate industry found itself confronted with an economic problem of some complexity.

When Velindre comes into operation in 1957 most of the existing hand mills will have to close down, but in the meantime the output of these mills remains essential in times of ordinary demand. To close down a hand mill during a period of recession involves a serious risk of permanently losing skilled labour to other industries. In the event the Steel Company of Wales decided to close down a number of its own hand mills, and at the same time other mills, formerly independent but now State owned, also closed. Independent mills still in private hands for the most part remained in operation, however. All in all out of 182 mills in operation at the beginning of this period, about 83 were closed down by the middle of this year.

The rapid recovery in demand for tinplate which took place this year rather confirms the view that the closure of mills on this scale was perhaps unduly precipitate. Demand at home and overseas has risen sharply, and it is believed that the tinplate industry's order book now stands at a higher level than for two years past. Tinplate consumers in fact are once again faced with the prospect of a shortage. As a result the Steel Company of Wales now intends to re-open nine of the closed mills, and it is hoped that they will soon be in production. How far this will prove possible, however, still remains to be seen. Sir Walter Monckton said in the House of Commons last June that out of some 4,900 tinplate workers made redundant since the beginning of the year, only 484 were still registered as unemployed. To attract skilled men back again into what is admittedly a dying industry may prove a very difficult task.

The prospect for tinplate supplies therefore remains uncertain. As a consumer of about 40 per cent of the tin used in this country, the progress of the tinplate industry in satisfying demand during the difficult time ahead, until the new mill opens in 1957, will be watched with interest by tin producers, who must hope that during this period none of the industry's long term markets will be lost.

Powell Duffryn and Wankie Colliery

That the transfer of management of the Wankie Colliery Company in April last from Powell Duffryn to Anglo American Corporation of South Africa was considered to be in the best interests of all parties concerned was clearly indicated in the annual statement of Sir Herbert Merrett accompanying the accounts of Powell Duffryn for the year ended March 31 last.

During the five year period, 1948 to 1953, in which Powell Duffryn through its subsidiaries was associated with Wankie—first as consulting engineers and purchasing agents and later as technical and commercial managers—coal production at Wankie was raised by nearly 50 per cent to 2,750,000 tons per annum. Impressive though these figures be they were achieved under trying conditions, particularly in connection with the difficulty in maintaining an adequate supply of quality labour, both African and European, as was repeatedly pointed out in previous annual statements.

Sir Herbert confirms that an inadequate supply of labour was the paramount obstacle to increased production. Although every effort was made to recruit supervisory staff from the United Kingdom, neither the required quantity nor quality of personnel was obtainable and it became increasingly evident, he said, that recruitment and management would have to be undertaken by people with long experience and local knowledge of South African mining problems if the ultimate output objective was to be achieved. This problem of finding trained and thoroughly experienced mining experts with a knowledge of local conditions bulked larger even than the knowledge that an additional capital expenditure of £5,000,000 would be required eventually to raise production to meet the demands of the Rhodesias and Nyasaland.

It was, therefore, by mutual consent of all parties concerned, including the Southern Rhodesian Government, that Powell Duffryn agreed to transfer the responsibilities for the development and management of Wankie to the Anglo American Corporation of South Africa. The change of management was effected by the issue by Rhodesian Anglo American of 250,000 of its 10s. Reserve Stock units in exchange for Powell Duffryn's holding of 800,000 shares of 10s. each in Wankie Colliery and by the acquisition by the Anglo American Corporation of Powell Duffryn's total shareholding in Powell Duffryn (Rhodesia) Ltd.—the Rhodesian company which held the agreement for the management of Wankie—in exchange for 70,000 stock units of 10s. each in Rhodesian Anglo American.

Thus, in so far as Powell Duffryn accounts are concerned, the outcome of the new arrangements showed immediate benefit. Their previous investment in the equity of Wankie was £500,000 plus a management fee which, Sir Herbert said, was more or less absorbed in management services leaving them only with a modest dividend on their investment. Whereas under the new arrangement they now hold ordinary shares in Rhodesian Anglo American having a market value of approximately £750,000, the yield on which is far greater than that of their Wankie investment.

In so far as the Anglo American Corporation of South Africa is concerned, benefits likely to accrue must be considered in conjunction with what success they achieve in raising Wankie's coal production. Since the take-over date the Corporation has concentrated on strengthening the colliery's labour position and Sir Herbert said that the effect of the transfer of management was the immediate

shoring up of the technical staff at Wankie from local sources controlled by the Corporation. Anglo American has also tackled the question of raising additional capital and recently announced that its issue of 2,206,250 new 10s. Ordinary shares of Wankie at par to shareholders in the ratio of one new share for every three shares held and £3,500,000 at 5½ per cent First Mortgage Debenture Stock 1962-1978 at 98 in the ratio of one £20 Debenture Stock unit for every 40 shares held was successful, the Debenture Stock being fully subscribed as of right one by excess applications and the Ordinary shares being subscribed as to approximately 95 per cent.

In any event the change of ownership is of considerable moment to Central Africa for its continued growth is dependent on adequate supplies of coal and coke from Wankie and unless and until production can be substantially increased the full potential worth of these territories cannot be realized.

Canada

(From Our Own Correspondent)

Sudbury, September 14.

Increasing importance is being attached to the discovery of uranium in the conglomerate rocks of the Algoma and Sudbury districts of Northern Ontario. The Canadian staff correspondent of *The Mining Journal* traversed a considerable part of the area during the past few days and visited a number of discoveries. These finds, in so far as revealed to him, do not occur in the form of veins or dykes. Instead, they lie in comparatively narrow beds of conglomerate formation which display marked irregularity of outline—sometimes only a foot or so in width and sometimes 10 to 25 feet, and with the contact between the conglomerate and quartzite sometimes difficult to define. Quartz and chert pebbles occur like grapes in the uranium-bearing conglomerate. These pebbles are sometimes so tightly packed as to comprise about 50 per cent of the whole. It is in the matrix which binds the pebbles together that the uranium occurs. As to the economic importance of these discoveries, only time and a very considerable amount of work will record the answer. He carried a geiger counter with him, and came away from the field with the impression that operators may have to be prepared to deal with quite low grade ore. However, while the geiger counter readings were moderate to weak, this was offset by continuity. Prospectors and mining companies have staked claims over a length of approximately 100 miles.

This uranium-bearing area which promises to give the province of Ontario a conspicuous place in uranium ore development, is intersected by one of the finest highways in Canada. This highway runs from Sault Ste Marie at the United States border to the Sudbury nickel-copper field of Northern Ontario, a distance of some 200 miles. The discovery which first attracted serious attention to the district was nearly 100 miles south-east from Sudbury. Since then the staking out of mining claims has extended almost to the boundary of the nickel mines of Sudbury which produce the greater part of the world's nickel, and on which is situated the city of Sudbury with a population of more than 50,000.

POTENTIALLY IMPRESSIVE OPERATION

A merger of considerable magnitude has been arranged between Brunswick Mining and Smelting Co. and the joint holdings of Anacon Lead Mines and the Leadridge Mining Co., a wholly owned Canadian subsidiary of St. Joseph Lead Co. Under the initial arrangement, St. Joseph Lead will provide $7,500,000 with which to pursue development and construction, with provision for a further $17,500,000 should such be required. Included in the merger will also be extensive holdings of M. J. Boylen and associates. In a word, the merger involves the greater part of the major discoveries so far made in the Bathurst field of the province of New Brunswick. Exploration so far carried out has provided assurance of ore in sufficient volume to lay the foundation of one of the largest mining operations in Canada.

PREFERENCE FOR GOLD

Although the American Government has made it known that no increase can be considered in the price of gold at this time, it is significant that the Canadian Government continues to show a distinct preference for gold rather than American dollars. Canada as of July 31 held $942,000,000 in gold. The Canadian Government since 1949 has bought and retained all the gold available in this country. Gold is considered to be a key that will unlock the door to any trade lanes anywhere in the world. Opinion in this country is strong that sooner or later will come a time of violent readjustment in trade and finance—and lucky indeed the nation with a treasury well stocked with gold. That is the reason why gold miners in Canada continue their efforts in an uphill fight, firm in their belief that gold will ultimately come into its own. That, also, is why the Canadian Government gives out financial assistance to gold producing enterprises, firm in the belief that the time will come when gold producing mines in the country will be an asset of incalculable value.

The new railway of 145 miles in length will be completed to the new nickel mine of Sherritt-Gordon, at Lynn Lake in Northern Manitoba, by the end of October. Meanwhile, the big concentrator at the mine will begin operations, in part at least, by the beginning of October. Also, the company's refining plant at Fort Saskatchewan is taking shape and should be ready for operation before the end of January. This enterprise is destined to become a major operation and is an illustration of developments taking place throughout Canada. Sherritt-Gordon's new nickel mine is but one cog in a very large wheel, but it in itself involves railway construction, harnessing of electrical energy for motive power, mine development, concentrating equipment, and refining facilities in which to utilize the natural gas of a sister province—all adding up to a multi-million dollar undertaking—providing employment for men in large numbers, creating freight for railways of the country, establishing business for merchants and manufacturers of material and equipment, paying taxes to the national treasury—and destined, it is hoped, to pay substantial reward to those who invest capital with which to make the enterprise possible.

Labour unions which during recent years have exercised wide influence in some of the Canadian mining fields and which appeared able to get almost anything which they might demand, are now falling upon more difficult times. Union leaders, intoxicated with power, show signs of having overstepped common logic. Among the first to have recognized this are the rank and file of the daily workers themselves. The strike in the Porcupine goldfield is an illustration. There, despite the exhortation of Union leaders, the majority of workers are asking for police protection and are returning to their places of employment. Leading agitators have resorted to threats and violence, and a considerable number (25) have been arrested and sent to prison. Viewed without bias, and measured coolly by the records of production and costs, the burden now being borne by gold mines is about all that can be carried if the industry is to survive. The average man who works in the gold mines and owns his own home in the community is aware of this—hence his recent inclination to challenge and defy the dictatorship made manifest in union leadership which they formerly respected.

Preliminary Testing of a Brieden Pneumatic Packing Machine in U.S. Anthracite Mine

The four principal methods of packing in mining are the hydraulic, pneumatic, mechanical and hand, and reports from various countries indicate the superiority of the pneumatic over hitherto conventional methods. Experiments in packing have been accelerated in the United States owing to the realization that the future of the northern anthracite field depends, to a progressively greater degree, on perfected back-filling methods. The following article, a condensation of U.S Bureau of Mines *Report of Investigations 4978* by C. A. Landsidle, J. C. Hartley and J. W. Buch, describes an experiment carried out at Plymouth, Pa. The report presents a complete description of a Brieden pneumatic packer and its particular installation underground, and considers that the combination of pneumatic power with coal-cleaning refuse of the Northern U.S. anthracite region, may offer a solution to the present difficulties of pillar removal.

The principal types of pneumatic packing machines have been used in Europe, namely the batch type (Torkret) and the continuous-flow types (Brieden, Blastower, and Beien). After the recent world war, the U.S. Bureau of Mines imported from Germany, for experimental purposes, a Brieden pneumatic packing machine, model KZR-700. The machine is 10 ft. 10 in. long, 3 ft. 7 in. wide, 4 ft. 5 in. high and weighs 10,580 lb. It consists of four main units as illustrated in the assembly drawing: reversible compressed-air motor (A), speed reducer (B), bed plate (C), and receiving and distributing section (D). The motor is rated at 20 h.p. at 60 lb. gauge pressure.

THE PACKING MACHINE

The back-filling material is delivered to a hopper (a) on top of the machine from which it drops into a segmented, seven-compartment drum (b) that rotates in a conical housing (c). The compartments empty into a compression chamber (d) in the housing below the drum, and exhaust ports (e) in the sides of the drum housing allow the decompression of empty pockets as they rise to be filled again with material. The housing is equipped with a replaceable housing liner (f) that is easily exchangeable, owing to its conical shape, and protects the housing from wear. Axial adjustment of the segmented drum can be made quickly by using a hand wheel (g). The drum can be drawn deeper into the sleeve by this means. The air for moving the material is admitted into the compression chamber through a jet pipe (h) at the rear of the machine and, entraining the material dropping into the chamber, exits through the discharge pipe (i) at very high speed. Area reduction at the inlet end of the machine develops high air speed at the expense of about a 60 per cent reduction in static pressure. The jet pipe is of special shape and a larger or smaller jet can be substituted when length of discharge pipeline or air supply require it. The jet and air-admission pipes are joined by a flange coupling. The discharge pipeline is connected to this machine by a conical connecting pipe (j). This pipe has a cleanout opening and the cover (k) over the opening is held in place by a wedge (l).

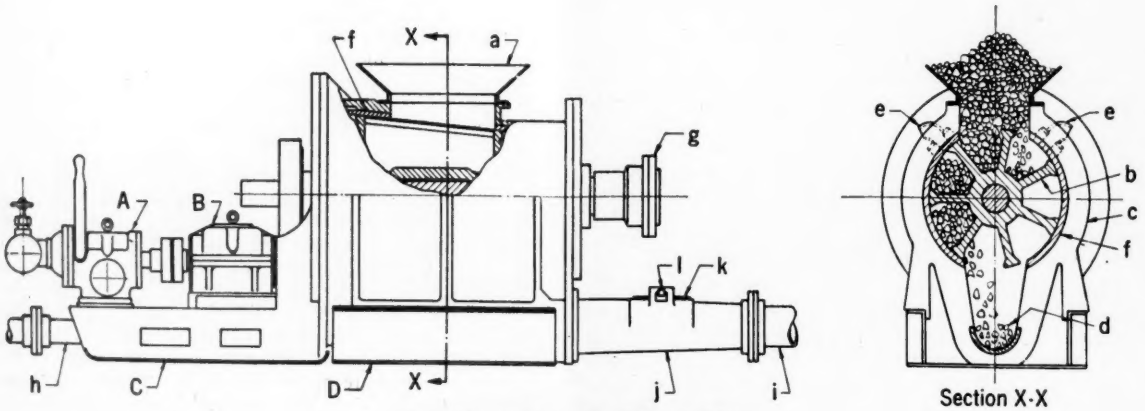
INSTALLATION OF MATERIAL

The area offered for the initial experiment was a first-mined section in the Top Ross bed at a mine at Plymouth, Pa. The bed is fourth from the bottom in a series of 11 beds. The area to be back-filled experimentally was not expected to yield pillar coal immediately, and was in an isolated part of the mine where the proposed work would not interfere with any other activity. The minable bed averaged 5½ ft. in thickness, was at a depth of about 1,000 ft., and pitched about 10 deg. Chambers were driven 24 ft. wide on 60 to 70 ft. centres 300 ft. long, with a pitch to the rise of 8 to 14 deg.

Material for packing was from the preparation plant, and was principally slate, but contained considerable carbonaceous material. The average weight of the material was 70 lb. per cu. ft.

The packing machine and accessory equipment were installed in an old chamber just below the gangway for tests underground. Experiments were begun on January 13, 1950, and were completed December 11, 1951, during which period packing was done on 204 shifts. A total of 22,834 tons of material were packed in 15 chambers. The greatest distance of discharge line was 990 ft. up the pitch.

In a typical range of one chamber being packed, the discharge line was 675 ft. in length through a total rise of 80 ft., and incorporated therein were 5 changes in direction made by bending pipes 5 deg. to 15 deg., two 90 deg. elbows, one 45 deg. elbow, and one 22½ deg. elbow. A cable-reel locomotive was used to transport cars during the packing shift. Filled cars, containing an average volume of 100 cu. ft. of material, were transported from the surface to two sidetracks near the packing site during the coal-



Assembly drawing of packing machine

producing shifts. Details of the machine installation are shown in the accompanying illustration.

A mine-car dump (a), suitable for handling end-dump cars, was installed at the end of a spur track (b) that was long enough to clear two cars, and thus permit quick car changes. The material for packing was deposited in a shallow bin (c) in which the bottom panels were sloped enough to cause the material to slide to the shaker-conveyor trough (d) driven by air motor (e). The shaker delivered material to the hopper of the packing machine (f). Incoming air reached the equipment through a 4 in. line (g) that terminated at the recording flowmeter (h). Two 2 in. take-offs (i) and (j) transmitted air to the packing-machine motor and shaker drive. Air entered the compression chamber through a quick-opening valve (k), and packing material left the machine through a 6 in. discharge line (l). One man controlled the packing-machine motor, shaking conveyor, and air blast with valves conveniently located at his station, and a transportation crew of two men with two additional men at the stowing point completed the operating crew of five men. The transportation facilities available during this experiment would be insufficient for the machine to operate at capacity, in which event the handling of at least 27 cars (945 tons) of material an hour at the dump would be required; the capacity of the shaking conveyor also would be too low.

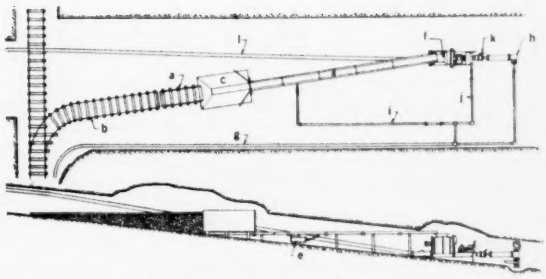
SUPPLY AND DISCHARGE PIPELINES

The air-supply line to the machine site consisted of 114 ft. of 12 in. pipe, 550 ft. of 8 in. pipe, 6,440 ft. of 6 in. pipe, and 2,600 ft. of 4 in. pipe; thus, the machine was about 9,700 feet from the source of air supply during the experiment. The discharge pipeline, of 6 in. nominal diameter, was at first assembled with threaded-sleeve or flange couplings. However, the threaded-sleeve type was discarded after a short time, as it was found that the labour charge involved in laying and dismantling the lines was extremely high; and, as the pipe ends did not butt snugly at the joints, sliding material rapidly wore the pipes through at the points where the thickness of the metal has been reduced in cutting threads. A non-slip type of two-bolt coupling was used during the latter part of the stowing tests, and proved to be fairly successful. With this coupling, pipes formerly useless because of holes at the threads were cut off and returned to service. Flanged joints were used at elbows. The wear of the standard mild-steel pipes used in this experiment was a substantial factor in the maintenance cost of the equipment.

The life of pipes in the discharge line ranged widely during this experiment, as pipes in straight runs lasted much longer than those that were bent and those installed at inby elbows. At four known places the average pipe life was about 6,000 tons of material packed. Similarly, the standard cast-iron elbows were worn out after passage of about 3,000 tons of material. A hard metal-lined elbow of German manufacture was still in use after four cast elbows had been worn out in competitive tests.

Compressed-air power was supplied at a central station on the surface where two two-stage compressors (one steam-driven and the other an electric unit), having a combined capacity of 3,900 cu. ft. a minute, produced the air required for the operation of the various appliances, such as pneumatic drills, conveyor drives, and gathering pumps. The primary distribution line on the surface was 12 and 8 in. in diameter, and branch lines 6 in. in diameter were taken underground at the two main shafts.

The static pressure of the air supply under no-flow conditions at the machine was about 105 lb. p.s.i., but friction losses in the approximately 9,700 ft. supply line were so great as to permit an average sustained operating pressure of only 33 lb. gauge. The highest average flow recorded was slightly over 1,900 cu. ft. per min., and only approximately 60 lb. air pressure was available.



Details of machine installation

In operation, with an average consumption of 99 cu. ft. p.m. per cu. ft. of material packed, delivered at about 33 lb. gauge pressure, the shaking conveyor required 129 cu. ft. per min.; the packing-machine air motor, 118 cu. ft. per min.; and the remaining 15,000 cu. ft. per min. was available for transporting the material through the pipeline to the packing point. The air pressure at the exit end of the machine averaged about 10½ lb. gauge. This value varied with the length of the pipeline.

OPERATION AND PERFORMANCE

Operation was begun and continued for some time on the premise that a relatively high drum speed would afford better feed conditions for transporting material through the discharge line. However, trials with lower drum speeds revealed that more material could be handled with less consumption of air. In fact, a reduction in average drum speed from 19.6 to 7.4 r.p.m. was accompanied by a 33 per cent increase in performance, while the air consumption per cu. ft. of material handled dropped from 111 to 99.

The studies on performance during the experiment indicated that, under the existing conditions the gross packing rate, since the slower drum speed was adopted, was about 680 cu. ft. per hr., whereas, the average net rate of machine operating time was 1,160 cu. ft. per hr. Net operating time per shift ranged between 44.7 and 70.3 per cent of the gross time and averaged 58.6 per cent.

CONCLUSIONS

Material was packed to the roof and stood well, as placed, indicating that pneumatic packing is superior to the methods of waste disposal by hand or with scrapers and conveyors, as the initial compaction on filling assures much less ultimate subsidence. It is believed that the cost would be relatively low for packing work. Based on 100 per cent compressor efficiency and neglecting line loss, both of which vary depending upon the installation, with electrically driven air compressors, and an electrical energy cost of 1 c. per kWH., compressed air is estimated to cost an average of $.00238 per cu. ft., approximately 6 c. per cu. yd. of material packed.

Further refuse from coal-cleaning plants in the anthracite region appears to be ideal for packing purposes, although delivery of stowing material to the machine must be planned to accommodate the performance anticipated. The air supply, at 60 lb. gauge, should be sufficient to assure at least 120 cu. ft. of free air per cu. ft. of material handled, although there is need for further investigation of proper stowing pipelines and accessories.

Escom's Rand Undertaking

On the Rand, the demand created by the rapid development of mining and secondary industry has outstripped the capacity of the Rand Undertaking of the Electricity Supply Commission (Escom). As the mines are collectively Escom's largest customers, it is inevitable that much of the burden of rising costs should be transferred to the mining industry. The following article points out this disquieting picture of rising costs which is presented by the thirtieth annual report of the Commission, relates the history of the Rand Undertaking, and suggests that a readjustment of existing differential rates might effectively bring economic aid to Escom and the Witwatersrand mines.

The Thirtieth Annual Report of the Electricity Supply Commission (Escom) presents a disquieting picture of the rising cost of generating and supplying electrical power in South Africa. In 1952 the average cost per unit sold was 0.3883d., representing an increase of 8.663 per cent over the figure for the previous year. In the same period the average price charged per unit sold rose from 0.3506d. to 0.3738d., representing an increase of 6.62 per cent.

The intention of the Electricity Act, No. 42 of 1922, was that power should reach the consumer at the lowest possible rate, and in accordance with that policy Escom is required to operate, as far as possible, neither at a profit nor at a loss. The huge demand from the gold industry has made it possible to plan the development of power supply undertakings on the most efficient lines and to install units of optimum size for the economical generation of electricity. As a result of these economies Escom has been able to continue supplying consumers with electrical power at rates which compare favourably with those charged by supply authorities in other countries. The average price charged per unit sold in 1952 was approximately double the corresponding figure for 1939. Having regard to the general increases in costs and figures, this speaks highly for the efficiency of South Africa's power supply industry.

Unfortunately the Commission, in its efforts to discharge its functions in the spirit of the Act, incurred an overall deficit of £418,282 in the operation of its undertakings. In terms of the Act it has no alternative but to adjust its charges accordingly in order to avoid operating at a loss. The strict financial control maintained over its activities even prohibits the establishment of an undertaking which cannot immediately be self-supporting, but which could recoup capitalized losses in later years.

LARGE CONSUMPTION OF MINES

The mines are collectively Escom's largest customers, purchasing 4,585,333,615 units last year out of a total of 8,080,560,814 units sold by the Commission. It is inevitable, therefore, that much of the burden of Escom's rising costs should be transferred to the mining industry, although the Commission well realizes that the upward revision of tariffs is adding to the difficulties of gold producers, who are unable to pass on such increases, because the price of their own commodity is pegged.

The industry's relations with the Commission are on a special basis. For many years the Victoria Falls and Transvaal Power Company provided the gold mines with cheap and abundant supplies of electricity and compressed air, systematically expanding its undertaking to keep pace with the constantly increasing requirements of the mines. When the franchise of the commercial company expired, the undertaking was expropriated by the non-profit-making national authority, as provided for under the Electricity Act. The purchase price was £14,500,000, and Escom assumed ownership and control of the undertaking as from July 1, 1948.

Pending the conclusion of negotiations between the Gold Producers' Committee and the Commission, Escom undertook to continue the supply of electrical and other power on the basis of existing tariffs. A new Agreement was eventually concluded, a feature of which is the tariff accorded to the mining industry, which receives an overall benefit of about 5 per cent as compared with other industries. Last year the mines paid 0.2866d. per unit, compared with charges of 0.3097d. to other industrial users and 1.0461d. per unit for domestic and lighting purposes.

The special tariff is accorded not only to members of the Transvaal Chamber of Mines, but also to any of their associate companies who are engaged substantially in mining. It therefore covers virtually all mining operations of major importance throughout the area served by the Rand Undertaking.

The Victoria Falls and Transvaal Power Company operated for a number of years under the Rand Licence, granted to it under the Power Act 1910 (Transvaal), which covered a limited area. The area of operations was subsequently enlarged by the Rand Extension and Greater Rand Extension licences. These were originally issued to Escom and were ceded to the commercial company, whose sphere of operations ultimately comprised the mining areas of the Witwatersrand magisterial districts of Potchefstroom, Krugersdorp, Vereeniging, and Heidelberg, as well as portions of the Witbank, Pretoria, Ventersdorp and Klerksdorp districts, and a large area of the Orange Free State. The present area of supply extends from the north of Rustenburg to Winberg in the south, and from Mafeking in the west to Delmos in the east.

The relevant licences were acquired by the Commission on the expropriation of the Victoria Falls and Transvaal Power Company. They have been considerably amended, however, by the incorporation of certain provisions of the Klip Agreement, the effect being that on account of the higher cost involved, mining consumers outside the area of the Rand Licence will initially pay more for their supply than those within the Rand Area. It was agreed that this differential should be 15 per cent, but provision has been made for this figure to be reviewed each year, consideration being given to the growth of the load, the acquisition of new consumers, and other circumstances affecting the cost of power supply.

TARIFF ON SIMULTANEOUS MAXIMUM DEMAND

Escom's original proposal was that the Demand Charge should be based on the non-simultaneous maximum demands at all points of delivery on each mine, the reason being that should any particular mine require further points of supply, the charge would be reflected direct to that mine and would not have to be shared by other mines. It was subsequently agreed, however, that the tariff should be based on the simultaneous maximum demand for each mine, subject to the provision that an additional fixed charge per month should be payable for each additional point of supply established under the Consumer's Contract. "Maximum demand" is defined as the largest number of units of electricity or air supplied in any period of 60 consecutive minutes. "Maximum simultaneous demand" is the largest aggregate number of units of electricity supplied simultaneously in the same period over all the points of supply provided under the Consumer's Contract.

It was further decided that the additional fixed charge should be a flat rate to cover the additional cost incurred by the Commission in the average case of furnishing the supply

at the additional point in comparison with the costs which would be incurred in furnishing the whole supply at one point. The amount of the charge is calculated at current prices, but may be varied from time to time to take account of variations in the price of equipment and other costs. At present prices the additional fixed charge is calculated to be £115 per month for each additional point of supply. It is payable over a period of 20 years, but only in respect of any additional point of supply established after June 30, 1948.

Consumer's contracts remain in force till December 31, 1971, and provide for the supply to be given at the standard prices fixed from time to time in the licence.

The Rand Undertaking was acquired by Escom at a stage when a very large expansion of business had become necessary. The tariffs which the Commission was able to adopt at the commencement reflected the pre-war level of costs. Increases in the cost of coal and other items have necessitated upward adjustments of the initial charges. New tariffs were introduced on the Rand Undertaking in January, 1952. Due largely to a rise in the cost of coal, it became necessary to increase them with effect from July, 1952, and to incorporate provision for an automatic adjustment for variation in the cost of coal. The new tariffs, with the Coal Adjustment Clause, were approved by the Electricity Control Board in November, 1952. A further general increase in tariffs was made in January, 1953.

CONSIDERABLE PROJECTED EXPANSION

In their Annual Report the Commission point out that further upward revision must follow the commissioning of new plant. On the Rand the demand created by rapid mining and industrial development has outstripped the capacity of the undertaking; on a number of occasions power shedding has had to be carried out and loads have been restricted. A very large programme of expansion, comprising both new power stations and extensions to existing power stations, is in progress, but it is possible that even when this programme has been completed the Commission may not be able to cope fully with the demand.

The revised estimates of the probable cost of the new power stations represent an average capital cost of approximately £66 per kW. of plant installed, compared with £15.3 per kW. installed in the Klip Power Station, which was completed in 1942. The aggregate cost of new power stations and extensions within the Rand Undertaking is now estimated at £57,070,000. Yet in 1945, when the Union had over 2,000,000 kW. of installed plant, the total investment in the power supply industry was in the region of £55,000,000. Moreover, the rise in interest rates to 5 per cent during the past two years does not hold out much prospect that loan capital will be obtainable in the near future at the low rates of 3 to 3½ per cent, which were a feature of the Commission's borrowing during the years 1947-49.

It is inevitable, therefore, that the commissioning of new power stations and extensions to existing stations, together with the development of transmission and distribution networks to take this additional power to consumers, should necessitate further increases in tariffs, which will be substantial when all new plant is brought into commission.

The effect of the progressive increases of price on the working costs of gold producers may well be very great. During the period October, 1951, to January, 1952, the cost per unit consumed by the mining industry rose from 0.264d. to 0.277d., being an increase of 0.013d. per unit consumed, or approximately 5 per cent. The increased cost to the industry was of the order of £22,400.

Escom's Report contains no figures relating specifically to the gold mining industry, nor is it customary for South African gold mines to include expenditure on electrical power as a separate item in the balance sheet. In the absence of suitable statistics, no exact figure can be given to show precisely the impact of rising power costs on the working costs of individual mines. The gold industry, however, is by far the largest customer of the Rand Undertaking and contributed the bulk of the revenue of £5,026,498 which the Commission derived last year from sales to mining consumers. In the same year the working costs of the South African gold mining industry aggregated £102,525,003. It is evident, therefore, that electrical power must account for an appreciable percentage of the total working costs per ton, and that each increase in the price per unit represents a further curtailment of the slender working profit of 12.11d. per ton.

Escom's own increased costs were not passed on to consumers in full last year, but the Commission's latest Report makes it quite clear that during the next few years the upward trend of costs and charges is going to be very sharply accentuated.

It is significant that last year railage on coal consumed by Escom rose by 28.317 per cent to £1,437,922. This increase was due in part to an increase of 6.759 per cent in the quantity of coal consumed, but the bulk of it is accounted for by an increase of 20.194 per cent in railway rates. Railway tariff policy is bound up with political considerations, but it might be suggested that a readjustment of the differential rates which exist to provide more favourable treatment for the power supply industry, is perhaps the only way of assisting Escom and its hard pressed mining consumers in their uphill struggle to keep down working costs.

Mining in Korea

Formerly gold was the chief mineral asset of Korea and represented about one-half of the value of all minerals produced, including coal. Gold mining operations were suspended by the Japanese in 1942. The country is well endowed with many other forms of mineral wealth, which will be of critical importance to rehabilitation.

Coal resources, which are chiefly anthracite, may be in the region of 500,000,000 tons, and the normal production of Korea as a whole was close on 6,000,000 tons. This source of fuel is largely in the north. The coal production of South Korea has steadily increased since the end of World War II and exceeded 1,000,000 tons in 1949. Production dropped sharply in 1950 and has not yet recovered. At the request of United Nations Headquarters, the Secretariat of E.C.A.F.E. sent a specialist to South Korea in 1951 to assist in the rehabilitation of coal mines. This expert spent approximately two months in the country and submitted a report with recommendations, which was stated to be very valuable.

The country has no oil resources, but synthetic liquid fuels used to be produced. A refinery at Wonsan, now demolished, processed Sakhalin, Indonesian and Borneo oil.

There are about 500,000,000 tonnes of medium-grade iron ore in the country, the main mine centre being Musan, near Vladivostock. Under Japanese occupation the normal production was 2,000,000 to 3,000,000 tons of concentrates.

Korea is an important producer of tungsten concentrates, and the entire output is shipped to the U.S. Korean nonferrous resources are large enough to permit moderate outputs. Lead and zinc resources are substantial, although copper resources are less abundant.

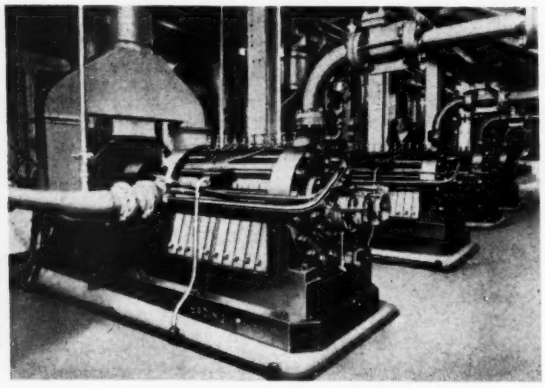
In 1944, Korea produced over 100,000 tons of graphite, one-fourth being of the crystalline variety. The country has also produced enough mica, asbestos, soapstone, apatite, pyrite and salt for its own needs.

MACHINERY AND EQUIPMENT

Turbine Pumps for Mining Use

The Pulsometer Engineering Co., Ltd., of Reading, have been manufacturing pumps for mining use since 1875. In those early days the steam pump was mainly employed, a unit which acted in a double capacity for sinking mine shafts and then for permanent mine drainage.

As electricity became available to industry, the steam pump was gradually replaced by the multi-stage electrically-driven turbine pump which to-day is equally well-known and which is performing mine duties all over the world and under varying conditions, some of which are difficult, including lifts as high as 3,600 ft. and over. The latest rotary pumps manufactured by the company have advantages over those of a reciprocating character, including simplicity of construction, economical running, and reduction in wear and tear. They are also stated to be more compact for given duties, require no valves or air vessels, and are specially designed so that not only can they be fitted with acid resisting or other materials best suited to mine drainage water but may be speedily refitted with replacement parts.



Four TH4 pumps of capacities 417 g.p.m. against 2,050 ft., 1,500 r.p.m. installed underground in a South African mine

The pumps run silently and without vibration and there is no metallic contact between working and stationary parts, except in the case of bearings which are automatically lubricated so that wear is reduced to a minimum. The pumps, it is claimed, will give years of reliable service with a minimum amount of trouble. Many of these Pulsometer turbine pumps have been adapted as vertical shaft sinking pumps for dewatering on inclined workings and in some cases have been designed to be used first as sinkers and finally mounted on drainage pumps at the bottom of mines. Their multi-stage construction enables them to be used for draining several levels at the same time. Water can be taken from upper lodgements and delivered with water from pit bottom, without any loss of efficiency.

The pumps will stand the strain of frequent starting and stopping. In colliery work, where sometimes an unexpected inrush of water may occur, it is considered advisable to install a pump with a convenient margin of capacity and to work it intermittently. In that event the most efficient set can be chosen without direct reference to the inflow which might otherwise affect the power absorbed. These units have been installed on the majority of the world's mining fields.

Mud-Drilling Additives in the U.S.

The method of rotary drilling now in use at the Eakring oilfield was briefly described in our issue of September 25, where it was stated that American methods and equipment had led to improvements in speed and reduction in costs. It is, therefore, interesting to note, in an extract from *Chemonomics*, that two general methods of digging oil wells prevail in the United States, and the method which is used 90 per cent of the time is the rotary method, which uses a circulating fluid known as drilling mud.

During drilling, a mixture of water, clays, minerals, and chemicals is pumped down through the hollow drill pipe, and circulates back to the surface in the space between the outside of the pipe and the walls of the hole. This mud carries all drill cuttings from the bottom of the well to the surface, discharging them into a settling ditch or onto a vibratory screen. It also cools the cutting edge of the drilling bit, by absorbing the heat generated in the drill pipe and bit. The mud also deposits a clay sheath on the walls and bottom of the well, thereby preventing caving and the loss of fluid into the formations which are being drilled.

The mixture also lubricates the drill pipe and seals off unusually permeable low-pressure formations, closing the pores of formations which yield high-pressure gas or water. Furthermore, it holds the cuttings in suspension when circulation is stopped, and supports part of the weight of the drill pipe and casing.

The properties of the drilling mud must be changed from district to district in order to meet changed conditions below the surface. Numerous chemicals and minerals are added to the basic clays and water to change the density and the thixotropic properties, to control viscosity, to serve as deflocculating agents, and to change the pH.

Common materials which are used in the drilling mud are: soda ash, lime, sodium hydroxide, quebracho, vegetable gums, carboxymethyl cellulose, polyphosphates, bentonite, and barite.

Locked Coil Ropes for the Mining Industry

In the mining industry, locked coil ropes may be used for winding and sinking purposes, for pit cage guides and rubbing ropes, and for aerial carrying ropes, Blodins and cableways. These ropes present many advantages for such duties as, owing to their design, they are said to be less subject to rotation and stretch than stranded ropes. This aspect is particularly valuable in the case of sinking ropes or for ropes used in shaft winding, where clearance between cages and shaft-walls is small.

British Ropes Ltd. have paid particular attention to the production of locked coil ropes, and every rope made by the company is carefully lubricated during each stage of manufacture. The interlocking wires of a locked coil rope retain this lubricant, with the result that the rope is less liable to internal corrosion than other types of rope. In all, the advantages of locked coil ropes may be summarized as fourfold. First, size for size the manufacturers claim them to be of greater strength than stranded ropes; second, a smooth exterior surface reduces wear by friction; third, as already intimated, they are less subject to rotation and stretch than stranded ropes; and lastly, the modern equal laid centre reduces internal friction. On each end of every locked coil winding rope sent out by British Ropes Ltd. there are fine wire servings, and the company has moved towards the total elimination of internal corrosion by manufacturing a special locked coil rope in which each separate wire during manufacture has been protected with a corrosion-resisting metal before the rope is spun.

Typical examples of locked coil winding ropes are that of $\frac{5}{8}$ in. diameter which has an approximate weight of 100 lb. per 100 ft. Manufactured in patent steel at tensile stress of 80/90 tons per sq. in. the actual breaking load is 18 tons, while in plough steel of tensile stress 100/110 tons per sq. in. actual breaking load is 21 tons. These breaking tonnages constitute 2,240 lb. and actual breaking loads are subject to a tolerance of −5 per cent. Another winding rope is that of $2\frac{1}{2}$ in. diameter, which has an approximate weight of 1,550 lb. per 100 ft., a breaking load of 295 tons in patent steel and 344 tons in plough steel. Other examples may be regarded as the guide rope of $2\frac{1}{2}$ in. diameter, which has an approximate weight of 1,550 lb. per 100 ft. and actual breaking loads of 127, 163 or 199 tons at tensile stresses varying from 30/40 tons per sq. in. to 50/60 tons per sq. in., and the $2\frac{1}{2}$ in. diameter aerial rope of the same weight per 100 ft. length, which has an actual breaking load of 212, 247, 282 or 318 at tensile stresses varying from 55/65 tons per sq. in. to 85/95 tons per sq. in.

METALS, MINERALS AND ALLOYS

The hoped-for spate of autumn buying has still to make its appearance in the United States. Under the circumstances markets have continued quiet this week with a steady tendency. In London copper has eased somewhat but there is not much change in the sister metals from last week's prices, though the backwardation in all four metals suggests caution. The U.S. Tariff Commission public hearings on lead are due to begin on November 3, and on zinc on November 5. The U.S. stockpile according to Mr. Arthur Flemming, the U.S. Defence Mobilizer, is filled up on lead and tin.

COPPER.—Copper has been rather featureless this week. In the United States information is still awaited regarding the progress of the Washington negotiations with Chile, which are said to have been complicated by the miners' strike reported at the Andes property while a strike has occurred also at Kennecott's plants at Santa Rita and Hurley. In the United States antagonism between the labour unions and employers' organizations seems to be hardening, especially over the thorny question of the revision of the Taft-Hartley Act which was the issue on which Mr. Martin Durkin, ex-Secretary of Labour, resigned recently. This week the expected Longshoremen's strike has started. The organization which has called out its members—the International Longshoremen's Association—was recently expelled from the A. F. of L. which have chartered a new Longshoremen's union so an aggravated labour situation exists.

September sales in the United States reported up to the 23rd of the month are estimated at about 80,000 s.tons; customs smelters offers at 29 c. are said to have been going begging. Mr. Arthur Flemming's statement on stockpile policy in the future, briefly noticed in *M.J.* 11.9.53 p. 292, stated *inter alia* that the copper goal has not been met but could be reached before 1956 if D.M.P.A.'s production schedules are met and if the price of copper falls to the support level provided in the contracts.

In N. Rhodesia the annual conference of the African Workers' Union held last Friday has made some alterations in the constitution and drawn up a new policy on industrial relationships between its members and the mining companies. In particular, it discussed giving effect to the Dalgleish Report and the advancement of Africans in industry. Serious differences are said to have arisen within the European Mine Workers' Union, but we have no details.

LEAD.—There is little to notice in the lead market this week, though Metal Exchange prices have firmed slightly since our last. The New York price remains at 13.50 c. U.S. August domestic mine output was 38,022 s.tons (40,210 in July). However, over the first eight months there was a small increase to 345,739 s.tons against 340,009 for the same period last year, while shipments improved by about the same amount to 323,611 against 317,375 s.tons. At the American Mining Congress Meeting last week Mr. Andrew Fletcher, of the St. Joseph Lead Company, said that between 1948 and 1952 950,000 s.tons of lead were imported into the U.S. in excess of consumption.

TIN.—Tin has continued to fluctuate in a rather thin market on the Metal Exchange without presenting any definite picture. In the U.S. the spot price has further hardened on the news of the Longshoremen's strike to 84.50 c. per lb. nom.

It is announced that a revised draft for an International Tin Agreement will be discussed at a conference to be held in Geneva on November 16 and known as the London draft, following on the Paris and Geneva drafts discussed in 1949 and 1950 respectively. It would seem from such summaries as have been given out that the new draft will follow the former ones in its main provisions — the fixing of minimum and maximum prices, the creation of a buffer stock up to 25,000 tons of metal, and the appointment of a buffer stock manager to operate the stock with a view to restricting market fluctuations. Whether this new draft will be more successful in reconciling competing interests remains to be seen, but the countries participating almost suggests a United Nations Assembly convocation.

The Bolivian Mining Corporation has issue a denial that a new tin sales contract is being negotiated with the U.S. after the expiry of the present contract next March.

Indonesian shipments of concentrates in August were reported at 2,128 tons as compared with the July figure of 3,508 tons, and an eight months total of 19,723 tons compared with 21,369 tons in the same period of last year.

The Ministry of Supply has increased the basic prices for tinplate by 1s. 8d., and of terneplate by 6d. per box from Thursday. The resumption of work at the hand mills in South Wales is discussed in " Notes and Comments " in another column. U.S. tin mill shipments for the first seven months of the year were 2,168,933 s.tons of electrolytic, and 832,215 tons of hot dipped plate. The usual seasonal drop in demand is now expected.

ZINC.—A slightly firmer tone has developed in the London zinc market, Wednesday's quotation being £69⅞ for prompt and £68⅜ for forward. In New York the market is said to be featureless and very dull. Thanks to the heavy imports into the States smelter production is still about double domestic mine output at over 80,000 s.tons per month as compared with 40,000 s.tons output from the domestic mines. A smelter at Fairmont, Illinois, is to cut output by 1,000 s.tons a month from October 1 and by a further 800 tons from November 1.

At the American Mining Congress Meeting, Mr. Andrew Fletcher estimated U.S. imports this year should amount to around 768,000 s.tons against 451,000 s.tons actually required. Mine production in the U.S. he estimated at 570,000 s.tons of primary zinc and consumption at 1,173,000 s.tons. Thus, unneeded imports were some 317,000 s.tons.

ALUMINIUM.—Following on the forecast by Mr. Reynolds of a probably lessening demand for aluminium in the New Year, a spokesman for the Kaiser Aluminium and Chemical Corporation announced that there had been a slight drop in sales in the three months ended August 31 last. U.S. imports of metal and crude alloy in the first six months of this year were 142,102 s.tons mostly from Canada though minor quantities came from Austria, Norway, Western Germany, France and Japan in that order.

U.S. imports of bauxite increased 20 per cent in the second quarter of the year to the record figure of 1,106,243 tons. Though Surinam with 750,855 tons was responsible for about three quarters, the major increase was from Jamaica which supplied 326,513 tons against 180,120 tons in the first quarter of the year. The world production of bauxite continues to increase rapidly and is estimated by the U.S. Bureau of Mines at 12,837,000 tonnes last year against 10,984,000 in 1951. The chief producer was Surinam with 3,153,790 tonnes followed by British Guiana with 2,426,264; the United States 1,693,803; France 1,115,000; Yugoslavia 577,196; Indonesia 560,671; and Jamaica 350,000 tonnes.

MAGNESIUM.—Reporting on the output of magnesium last year, the United States Bureau of Mines estimates world production at around 151,000 tonnes, an increase of about 87 per cent on 1951. The United States was by far the largest producer with a total of 95,999 tonnes followed by Canada with around 5,000 tonnes; the U.K. 4,800; Norway 1,300; and France 1,090. U.S. consumption of primary aluminium is estimated at 43,847 s.tons, about three quarters of which went into defence materials. The use of cast magnesium was nearly double the combined use of sheet, extrusions and forgings; the guided missile programme increased the demand for very large castings. Some 1,200 s.tons were used as a reducing agent in the production of titanium and requirements in connection with aluminium, zinc, and other alloys improved by some 49 per cent.

TUNGSTEN.—The market during the past week has shown some signs of stirring and there has been some enquiry both here and in the U.S. but we have not heard of any actual

business taking place as yet. It is announced in Washington that tungsten will not be further purchased for the U.S. stockpile which has more than it needs and would like to get rid of some of its holdings.

ZIRCONIUM.—A large new zirconium plant is under construction at Akron, Ohio, by Carborundum Metals Company. It is stated that a commercially practical method for refining zirconiferous material has recently been developed and the processing equipment to operate it is being installed. Current prices are said to range between $28 and $32 per lb.

Iron and Steel

The increase in the output of steel has overtaken the shortage in home supplies and leaves a bigger margin for an expansion of the export trade. That is the inference to be drawn from the cut in the export price of steel plates which was made on Monday last. It would be a mistake to conclude that plates are again in plentiful supply. Shipbuilders, boiler makers and other big users are pressing for increased deliveries and big tonnages are being imported. But other types of steel are now freely available for shipment and the makers have recently lowered their export quotations.

Plate prices were the last on the list. Production in Europe has been increased and the German, French, Belgian and Luxembourg makers who are members of the European steel export cartel recently cut their agreed maximum export figure by around ten dollars a ton. The answer of British exporters is to cut their price by about double that amount. They can well afford to do so. The new basic export price for mild steel plate is £43 per ton compared with a fixed maximum of £30 6s. 6d. charged to home consumers. Nevertheless the export price cut is substantial and indicates a determination of British steel makers to use the advantage of low production costs in a new bid for the expansion of overseas trade.

Synchronizing with the new export drive, there has been a sharp decline in the volume of imports of foreign iron and steel. Arrivals in August totalled only about 150,000 tons which is more than 90,000 tons less than in the corresponding month of last year. The U.K. is going to be less dependant than ever before upon marginal tonnages of foreign steel. Re-rollers are badly in need of new business to keep the mills going and are restricting their purchases of billets. The outlook for sheets is more favourable and the makers are taking up fairly satisfactory tonnages of slabs and sheet bars, some useful orders having been placed. Quicker deliveries of finished steel products, other than plates, can now be made, and this has given an impetus to business in steel for the fourth quarter of the year. In fact a more hopeful view of the outlook now prevails and the industry is in a strong position to meet the keener competition for foreign business.

The London Metal Market

(From Our Metal Exchange Correspondent)

The London tin market remains without any special feature and fluctuates from day to day according to sentiment, although the undertone seems to be fairly firm. After breaking £600 per ton for forward metal early this week, a sharp recovery has taken place. The backwardation, which increased at one time last week to around £20 per ton, has now lessened to about £12 10s. In the East the price dropped sharply on Friday of last week, but the loss has since been practically restored. It is understood that the International Conference on tin will meet in Geneva in November, and it remains to be seen whether it will be possible to reach agreement for the control of supplies by means of a buffer stock or otherwise. The Eastern price on Thursday morning was equivalent to £630½ per ton c.i.f. Europe.

There is not a great deal of copper on offer for prompt delivery, and the Government Broker has been called upon to supply moderate quantities for home consumption, whilst Continental inquiry continues to be good. News from America is that the negotiations for the purchase of the Chilean surplus copper by the United States have almost reached finality. The quantity is understood to be in the neighbourhood of 100,000 tons and the price is stated to be 30 c. per lb., and it is believed that the deal will include a loan to Chile.

The demand for lead has been quite good, particularly for early delivery which seems to be in rather short supply, and premiums of several pounds per ton have been paid for prompt material.

There has been no special feature in the zinc market, but it is thought that the price has fallen to a level which may restrict production and so bring the supply more into line with consumptive demand.

Closing prices and turnovers for the week are given in the following table:—

	September 24		October 1	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Tin				
Cash	£622½	£625	£611	£612½
Three months	£607	£608	£602	£603
Settlement	£622½		£612½	
Week's turnover	530 tons		310 tons	
Lead				
Current month	£92½	£93	£92½	£92⅝
Three months	£88½	£89	£89	£89¼
Week's turnover	4,825 tons		2,775 tons	
Zinc				
Current month	£70⅜	£71	£70⅜	£71
Three months	£68½	£69	£68⅜	£69
Week's turnover	4,050 tons		2,000 tons	
Copper				
Cash	£237½	£242½	£232½	£237½
Three months	£224	£224½	£222	£222½
Settlement	£242½		£237½	
Week's turnover	4,050 tons		2,450 tons	

OCTOBER 1 PRICES

COPPER, TIN, LEAD AND ZINC

(See our London Metal Exchange report for Thursday's prices)

ANTIMONY

English (99%) delivered, 10 cwt. and over .. .. £225 per ton
Crude (70%) .. .. .. £210 per ton
Ore (60% basis) .. .. .. 20s. — 22s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) .. .. £483 per ton

OTHER METALS

Aluminium, 99·5% £150 per ton
Bismuth (min. 4 cwt. lots) 16s. lb.
Cadmium (Empire), 13s. 10d./14s. 4d. lb.
Chromium, 6s. 5d./7s. 6d. lb.
Cobalt, 20s. lb.
Gold, 248s. f.oz.
Iridium, £60 oz. nom.
Magnesium, 2s. 10½d. lb.
Manganese Metal (96%-98%) £280/£295
Osmiridium, £40 oz. nom.
Osmium, £65/70 oz. nom.
Palladium, £7 15s./£8 10s. oz.
Platinum, £27/£33 5s.
Rhodium, £42 10s. oz.
Ruthenium, £25 oz.
Quicksilver, £64 15s. ex-warehouse
Selenium, 30s. 6d. nom. per lb.
Silver 74d. f.oz. spot and f'd.
Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 60% 8s. 3d. lb. c.i.f.
50% 7s. 3d. lb. c.i.f
Chrome Ore—
Rhodesian Metallurgical (lumpy) £14 8s. 0d. per ton c.i.f.
„ „ (concentrates) £14 8s. 0d. per ton c.i.f.
„ „ Refractory £14 0s. 0d. per ton c.i.f.
Baluchistan Metallurgical .. £15 19s. 6d. per ton c.i.f.
Magnesite, ground calcined .. £26 - £27 d/d
Magnesite, Raw .. .. .. £10 - £11 d/d
Molybdenite (85% basis) .. 103s. 10½d. per unit c.i.f.
Wolfram (65%) .. .. .. World buying nom.
„ „ .. .. .. 310s. nom. U.K. Selling
Scheelite .. .. World buying nom.
„ .. .. 300s. nom. U.K. Selling
Tungsten Metal Powder .. .. 24s. 3d. nom. per lb. (98% Min. W.) (home)
Ferro-tungsten .. .. .. 20s. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £35 13s. 9d. d/d per ton
Ferro-manganese, home .. .. £49 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) .. .. .. 7s. 11d. - 8s. 7d. per unit
Brass Wire .. .. 2s. 5½d. per lb. basis
Brass Tubes, solid drawn .. 1s. 10d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

In the Kaffir market, trading conditions were quiet but steady. Tuesday saw the end of dealing for the old account but this had little effect on share prices which later recorded a marked improvement although some of the older properties remained weak. The better tendency can be attributed to the decision of the Union Government not to proceed with the Appellate Court Division Bill and it is now hoped that the political deadlock may be resolved without a major crisis.

The free price of gold continued to receive support at about $36¼. The main interest was centred on potential uranium producers. The departure of the U.S. Atomic Energy Commission has raised hopes that there will be a better understanding in the U.S. of the close link between the price of gold and the production of uranium and that this may lead to some relaxation of the present U.S. gold buying policy. The U.S. Commission will now be fully aware that the industry has only been able to keep going due to its high state of efficiency.

Confirmation was received that Doornfontein will produce uranium and that the slimes will be treated by the West Driefontein plant. It is expected that production will start in 1955. Market attention has been focussed on the progress made by Stilfontein. On this property uranium production is expected to start this year and gold and uranium should be produced together without sacrifice to either.

O.F.S. shares picked up with the general trend but remained cautious. The Freddies group particularly showed little change; the latest figures indicate that it may be a long time before these properties start to make profits. Harmony, however, rose sharply. The two shafts should be joined underground in November and gold production is expected to start late in 1954, followed closely by uranium. Development on the Basal reef up to August 31 has proved 91 per cent payable and has averaged 678 in. dwt.

The West African market received a rude shock when Bibiani and Ashanti both cut their dividends, the former paying 5 per cent against 7½ per cent and the latter reducing the interim to 20 per cent against 25 per cent. While the Bibiani results were in some measure expected, the Ashanti were not. The reduction is probably in line with the warning given by the chairman last spring about conserving resources. The mine, however, has been doing very much better and there has been market criticism as to why the cut was not made last year when the distribution was short earned. The shares fell to 21s. following the news. Taquah and Abosso added to the gloom with another large loss. Last year there were rumours that this low grade property might have to close down but considerable economies have been made and the mine is now showing monthly profits.

The initial improvement in coppers tailed off but some of the gains were held. Bancroft finished at 4½d. premium after 10½d. The rise in this section is probably due to the improvement in cash copper, but the forward discount on the metal and the reluctance of consumers to buy forward may be a more accurate reading of the situation. Speculative buying of Rhodesian Katangas and Esperanza took place, both on hopes of future developments.

Eastern tin shares were erratic but Kamunting rose after the news of the maintained dividend. The company's profits were down by some £180,000 but this concern was conservative during the boom period for tin and investors are now reaping the benefit. The company may not do so well next year as the dredges in Siam are being moved.

Nigerian tin shares improved on rumours that the columbite agreement may be extended beyond 1954. No confirmation of this had been received. The Gold and Base Metal report will be delayed pending negotiations for new columbite areas.

In the miscellaneous section, Rhodesia Monteleo slumped on the news that the mine will cease production. Wankie New shares were in good investment demand but the debenture remained unchanged at ¾ per cent premium.

FINANCE	Price Sept. 30	+ or — on week
African & European	2	.....
Anglo American Corpn.	5⅞	+⅛
Anglo-French	17/6	.....
Anglo Transvaal Consol.	21/3	.....
Central Mining (£1 shrs.)	28/1½	.....
Consolidated Goldfields	48/6	+9d
Consol. Mines Selection	24/4½	+7½d
East Rand Consols	2/6	.....
General Mining	3 1/16	—1/16
H.E. Prop	37/6	.....
Henderson's Transvaal	7/6	+3d
Johnnies	51/3	—3d
Rand Mines	3½	—1/16
Rand Selection	30/7½	+7½d
Strathmore Consol.	27/6	.....
Union Corp. (2/6 units)	26/9	+3d
Vereeniging Estates	3 1/16	+1/16
Writs	33/1¼	.....
West Wits	40/7½	+1/10½
RAND GOLD		
Blyvoors	39/-	+9d
Brakpan	10/3	—3d
City Deep	16/10½	—7½d
Consol. Main Reef	19/6	+1½d
Crown	33/1½	.....
Daggas	3 1/16	+⅛
Doornfontein	22/4½	+2/4½
Durban Deep	34/4½	+7½d
E. Daggas	13/-	.....
E. Geduld .. (4/- units)	30/-	+7½d
E. Rand Props	2 1/16	+1/16
Geduld	4 1/16	.....
Govt. Areas	12/-	.....
Grootvlei	21/3	.....
Libanon	9/4½	+4½d
Luipaards Vlei	21/9	+1/-
Marievale	18/-	—9d
Modderfontein East	17/6	.....
New Kleinfontein	18/1½	.....
New Pioneer	17/6	+1/6
Randfontein	40/6	+3/-
Robinson Deep	11/3	+6d
Rose Deep	13/-	+1/-
Simmer & Jack	4/7½	.....
S.A. Lands	20/-	—7½d
Springs	4/4½	+1½d
Stilfontein	25/3	+6d
Sub Nigel	2 1/16	.....
Van Dyk	5/-	—3d
Venterspost	12/6	+3d
Vlakfontein	13/3	.....
Vogelstruisbult	30/9	+1/-
West Driefontein	6½	+⅛
W. Rand Consolidated	2 1/16	+1/16
Western Reefs	2 1/16	+1/16

O.F.S.	Price Sept. 30	+ or — on week
Freddies	8/9	+3d
Freddies N.	8/6	.....
Freddies S.	8/3	.....
F. S. Geduld	2½	+⅛
Geoffries	14/6	+6d
Harmony	22/-	+1/10½
Loraine	7/6	+3d
Lydenburg Estates	11/6	+3d
Merriespruit	8/3	+3d
Middle Wits	14/4½	+1½d
Ofsits	33/9	+7½d
President Brand	26/7½	+4½d
President Steyn	22/6	+6d
St. Helena	12/6	+6d
Virginia Ord.	11/9	+6d
Welkom	17/9	+3d
Western Holdings	3 1/16	+⅛
WEST AFRICAN GOLD		
Amalgamated Banket	1/10½	.....
Ariston	6/-	—1½d
Ashanti	22/9	—6d
Bibiani	5/7½	.....
Bremang	2/3	.....
G.C. Main Reef	3/7½	—1½d
G.C. Selection Trust	6/3	—1½d
Konongo	2/6	.....
Lyndhurst Deep	1/-	.....
Marlu	1/6	.....
Taquah & Abosso	3/9	—3d
AUSTRALIAN GOLD		
Boulder Perseverance	2/6	.....
Gold Mines of Kalgoorlie	13/-	—3d
Great Boulder Prop.	9/9	.....
Lake View and Star	14/3	—1½d
Mount Morgan	17/3	—3d
North Kalgurli	6/10½ XD	—4½d
Sons of Gwalia	6/-	.....
South Kalgurli	6/9	.....
Western Mining	12/6	—3d
MISCELLANEOUS GOLD		
Cam and Motor	9/9	.....
Champion Reef	5/-	+1½d
Falcon Mines	7/3	+10½d
Globe & Phoenix	24/-	.....
G.F. Rhodesian	5/6	+3d
London & Rhodesian	4/9	.....
Motapa	1/6	.....
Mysore	3/3	.....
Nundydroog	6/-	.....
Ooregum	4/4½	.....
Oroville	11/6	.....

MISCELLANEOUS GOLD (contd.)	Price Sept. 30	+ or — on week
St. John d'El Rey	26/-	+3d
Zams	28/6XD	+2/6
DIAMONDS & PLATINUM		
Anglo American Inv.	3 1/32	—1/32
Casts	22/3	+3d
Cons. Diam. of S.W.A.	4½	.....
De Beers Defd. Bearer	62/-XD	—2/6
De Beers Pfd. Bearer	15⅛	+⅛
Pots Platinum	6/9	.....
Watervaal	11/-	—6d
COPPER		
Chartered	51/10½	+7½d
Esperanza	5/-	+3d
Indian Copper	3/10½ XD	.....
Messina	3 1/32	+1/32
Nchanga	6½	+1/16
Rhod. Anglo-American	48/3	+9d
Rhod. Katanga	15/3	+1/4½
Rhodesian Selection	15/7½	+9d
Rhokana	18½	+⅛
Rio Tinto	20⅜	+⅛
Roan Antelope	14/4½	+9d
Selection Trust	30/7½	+7½d
Tanks	58/9	+1/3
Tharsis Sulphur Br.	41/10½	+7½d
TIN (Eastern)		
Ayer Hitam	23/9	.....
Bangrin	8/-	—4½d
Gopeng	8/-	+3d
Hongkong	6/-	.....
Ipoh	15/-	—7½d
Kamunting	9/-	+1/3
Kepong Dredging	4/3	.....
Kinta Tin Mines	10/3	+3d
Malayan Dredging	23/9	+3d
Pahang	13/9	+6d
Pengkalen	8/-XD	—3d
Petaling	8/6	—1½d
Rambutan	10/6	+6d
Siamese Tin	8/7½	—1½d
Southern Kinta	13/6XD	+4½d
S. Malayan	23/3	.....
S. Tronoh	7/9	.....
Sungei Kinta	10/-	—7½d
Tekka Taiping	4/4½	.....
Tronoh	22/3	.....
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	10/6	+1½d
Beralt Tin	27/-	+3d
Bisichi	4/3	.....
British Tin Inv.	12/-	—3d
Ex-Lands Nigeria	3/7½	+1½d

TIN (Nigerian and Miscellaneous) contd.	Price Sept. 30	+ or — on week
Geevor Tin	9/6	—3d
Gold & Base Metal	3/6	+1½d
Jantar Nigeria	8/1½	+6d
Jos Tin Area	11/3	.....
Kaduna Prospectors	2/3	.....
Kaduna Syndicate	2/6	.....
London Tin	5/4½	.....
United Tin	2/7½	+3d
SILVER, LEAD, ZINC		
Broken Hill South	2 1/16	.....
Burma Mines	1/4½	.....
Consol. Zinc	23/4½	—7½d
Lake George	9/3	—3d
Mount Isa	32/-	.....
New Broken Hill	22/-	.....
North Broken Hill	2⅛	.....
Rhodesian Broken Hill	11/-	+3d
San Francisco Mines	17/9	+3d
Uruwira	2/3	—6d
MISCELLANEOUS BASE METALS & COAL		
Amal. Collieries of S.A.	43/-	—3d
Associated Manganese	44/9	—6d
Cape Asbestos	21/1½	+4½d
C.P. Manganese	53/1½ XD	+1½d
Consol. Murchison	19/-	—9d
Mashaba	4½d	.....
Natal Navigation	3⅛	.....
Rhod. Monteleo	2/6	—2/6
Turner & Newall	56/3	.....
Wankie	11/7½	+7½d
Witbank Colliery	3 1/32	.....
CANADIAN MINES		
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Hollinger	$22½	.....
Hudson Bay Mining	$71	—3
International Nickel	$70⅜	.....
Mining Corpn. of Canada	£3¾	.....
Noranda	$118	—1
Quemont	5⅛	.....
Yukon	4/3	+1½d
OIL		
Anglo-Iranian	7 1/32	+1/32
Apex	38/9	.....
Attock	33/9	+7½d
Burmah	55/-	+1/3
Canadian Eagle	28/9	.....
Mexican Eagle	22/1½	.....
Shell (bearer)	4 1/16	+1/16
Trinidad Leasehold	30/-	+1/6
T.P.D.	21/9	.....
Ultramar	25/9	.....

COMPANY NEWS AND VIEWS

Outlook For Taquah and Abosso Improving

A year ago we were writing in these columns that it might be necessary to close down Taquah and Abosso to prevent a dissipation of its assets. At that time Mr. Robert Annan, chairman, said at the company's annual general meeting that only an increase in the gold price, or a drastic reduction in costs, could alter the company's situation and that he saw little prospect of either eventuating in the near future. However, he did say that if the company could crush 23-24,000 tons per month the company could pay its way on a cash basis for a time but eventually shortage of development would bring them to a standstill.

Seen against this background the full report and accounts of Taquah and Abosso for the year ended March 31 last, presents an interesting study. Neither a higher gold price, nor a reduction in costs eventuated but some 17,000 more tons were put through the mill than in the preceding year which raised gold production by 4,000 oz. to 64,558 f.oz. While this was not enough of an improvement to produce a profit on the year's operations—although a modest working profit was realized before meeting charges for development and depreciation—it was indicative that steps taken by the management to improve the mine's efficiency resulted in monthly profit figures being obtained in the last five months of the year under review, which offset the losses incurred for the first seven months.

Year to Mar. 31	*Milled (tons)*	*Grade (dwt.)*	*Yield (oz.)*	*Cost per ton* s. d.*	*Ore Reserves (s. tons)*	*(dwt.)*
1953	274,000	4.7	64,558†	57 8	831,770	5.7
1952	257,000	4.7	60,516	52 6	1,069,660	5.5

* Excluding development charges. † Including 119 ozs recovered from slags.

Be that as it may, rising costs were a disturbing factor and, excluding development charges, showed a rise of 5s. 2d. per ton milled. Accordingly, the net result of the year's operation, after providing for development and depreciation, was that a loss of £22,184 was incurred, compared with a loss of £32,087. The unappropriated profits carried forward amounted to £44,868, compared with £60,492 brought in.

One other important point was the decline in ore reserves, although this was accompanied by a slight increase in their value, which reflects the substantial reduction in development footage accomplished during the year, the actual figures being 2,229 ft. against 5,723 ft.

When, however, the current year's results are considered, a more cheerful picture is presented. During the first five months 124,000 tons yielded 20,117 oz. for a working profit of approximately £59,300, which compares with only 105,000 tons, yielding 23,765 oz. and a loss of £49,300 in the corresponding period of the year under review.

Mr. Robert Annan is chairman. Meeting, London, October 20.

Kent F.M.S. Reduces Dividend

The report and accounts of Kent (F.M.S.) Tin Dredging for the calendar year 1952 gives the impression that operations proceeded satisfactorily, though at a somewhat lesser tempo than in the preceding year.

Year to Dec. 31	*Per cubic yard Dredged (000)*	*Yield (lb.)*	*Cost (pence)*	*Output (tons)*	*Per ton ore Cost £*	*Price £*
1952	1,531	0.69	14.9	478	200	572
1951	1,718	0.72	11.6	549	151	616
1950	1,751	0.65	11.1	514	158	449

That being so, the figures provided in the table above and immediately below tell the story. The lower dredge throughput and yield raised working costs per cu. yd. dredged. These features taken in conjunction with the decline in output by 71 tons and a lower average price received per ton provide the necessary explanation of the lower net profit and consequent cut in the dividend.

Year to Dec. 31	*Mining Revenue £*	*Mining Costs £*	*Taxation £*	*Net Profit £*	*Dividend %*	*Carry Forward £*
1952	331,648	95,396	110,911	60,559	70	31,843
1951	409,437	82,929	147,468	95,850	100	30,203
1950	280,945	81,115	83,714	60,245	57½	23,168

During the first six months of the current year output at 213¼ tons was, for all practical purposes, the same as that produced in the corresponding period of the year under review of 213¾ tons.

Mr. Stanley Wickett is chairman. Meeting, Redruth, Cornwall, October 21.

Doornfontein Joins Uranium Producers

Doornfontein Gold Mines has announced that arrangements have been made for it to produce uranium, and that the treatment of its uranium bearing slimes will be undertaken by the adjacent West Driefontein. The entire capital cost will be financed by loans from American and British sources.

Broken Hill South Pays Less

A cable from Melbourne to Austral Development announces that Broken Hill South is to pay 3s.A per 5s. unit on the £A800,000 issued capital making, with the interim already paid of 3s.A, a total of 6s.A or 120 per cent for the year ended June 30 last which compares with 160 per cent paid in the preceding year. A further cable from Melbourne declared that the combined net profit of Broken Hill South and its wholly owned subsidiary, Barrier Central Pty., for the year to June 30 last was £1,462,011 after providing for taxation and mining royalty which compares with a net profit earned by Broken Hill South alone in the preceding year of £A1,476,349.

Powell Duffryn Maintains Dividend on Lower Profits

The full report and accounts of Powell Duffryn show a consolidated net profit for the year ended March 31 last, of £556,883 (£731,686) after crediting transfer from taxation reserves of £50,000 (£51,704) and after charging depreciation of £361,132 (£347,467) and taxation of £920,027 against 1,253,045. The dividend is being maintained at 8 per cent. The carry forward was 2,208,285 against £2,174,673.

Powell Duffryn's association with Wankie Colliery is discussed under "Notes and Comments."

Kalgoorlie Electric Strengthens Its Liquid Resources

An advance statement from Kalgoorlie Electric Power Lighting Corporation announces a net profit, after all charges, of £10,710 for the year 1952. This compares with a loss of £3,507 in 1951. No taxation liabilities were incurred during 1952 owing to tax relief in respect of initial allowances on plant purchased in past years. The dividend is being passed so that the company's liquid resources which have been depleted because of the heavy plant expenditure incurred recently, can be built up. The statement also showed that £9,750 had been written off debenture issue expenses and that the carry forward at the end of 1952 was £4,752 against £3,792 brought in. The company's new boiler plant, steaming on coal, came into full operation on September 4 last. Meeting, London, October 28.

Expansion, Contraction and Liquidation of Tin Companies

Gold and Base Metal Mines of Nigeria in a circular to members has announced that the expansion of its mining interests in Northern Nigeria, which had as its object the substantial increase of columbite production (see *Mining Journal* April 24 last), has involved a reorganization and further negotiations which has prompted the company to postpone its annual meeting until January, 1954, so that a complete picture of the company's position can be given to shareholders.

United Tin Area of Nigeria, some of whose outlying mining leases were sold to Gold and Base Metals, has told shareholders in a circular that "it has had to curtail operations to best economic working," owing to the fall in the price of tin from £951 per ton last February to its current level of around £600 per ton. For the year ended June 30 last, the company produced 130 tons tin concentrates and 16 s.tons columbite compared with 102 tons tin and 10 tons columbite in the previous year. Thus last year, the ratio of recovery of tin as to columbite was roughly 8:1 which, on the basis of present price scales for tin and columbite, was a decided improvement over the preceding year when the recovery ratio was approximately 10 tons tin to 1 ton columbite. Taking these figures as our guide it would appear that the scope for varying the proportion recovered of tin and columbite are limited, and in the absence of any figures published as to the price received per ton for tin and columbite, it is difficult to elaborate on what is meant by "best economic working."

Kamra Tin Dredging and Pattani Tin have announced that they are being placed in voluntary liquidation and that extraordinary general meetings will be convened as soon as possible to give effect to the necessary resolution.

FREE STATE DEVELOPMENT AND INVESTMENT CORPORATION

The ninth annual general meeting of shareholders in Free State Development and Investment Corporation, Ltd., was held in the board-room, Consolidated Building, Johannesburg, on September 24, 1953.

Mr. K. Richardson, the chairman, presided, and, in moving the adoption of the report and accounts, said:

Gentlemen.—I have pleasure in submitting for your approval and adoption the directors' report and the audited accounts for the year ended March 31, 1953. The report and accounts deal fully with the affairs of your company for the year under review and require little comment.

A schedule showing the areas over which the company owns the mineral rights or enjoys participation or other rights is contained in the directors' report. With the exception of one borehole which is being drilled in the vicinity of the "Whites Block" and where the results so far obtained have been unpromising, no prospecting is being carried out nor is it expected that drilling will be undertaken in the near future on any of the other areas in which your company is interested.

MINERAL RIGHTS

There are at the moment no indications that any of the mineral rights will soon be turned to account and the company's interests lie at the present time primarily in its investments, the nature of which is set out in the directors' report.

The published reports of the companies concerned contain the results which have been obtained and there is nothing which I can add in amplification of such published results.

Before putting the motion for the adoption of the report and accounts, I would like to express our appreciation of the excellent services rendered by the technical and administrative staffs of the company.

I now move that the directors' report and audited accounts for the year ended March 31, 1953, as submitted, be adopted.

Mr. F. J. L. Wells seconded the motion, which was passed unanimously.

The retiring directors, Mr. B. L. Bernstein and Mr. G. H. Beatty, were re-elected.

A special resolution amending the articles of association of the company was passed unanimously.

ASHANTI GOLDFIELDS CORPORATION LIMITED

NOTICE IS HEREBY GIVEN that the Board of Directors have to-day declared an Interim Dividend (No. 114) on the Issued Capital of the Corporation at the rate of 9.6d. per Unit of Stock, less Income Tax at 9s. in the £. This Dividend which is in respect of the year ending September 30, 1953, to be payable on and after November 13, 1953, to all Stockholders on the Registers on October 2, 1953.

The Transfer Books will be closed from October 3, 1953, to October 12, 1953, both dates inclusive, for the preparation of Dividend Lists.

By Order of the Board,
E. W. MORGAN, *Secretary.*

Registered Address:
10 Old Jewry, London, E.C.2.

September 29, 1953.

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NOTICE IS HEREBY GIVEN that the Board of Directors have to-day declared an Interim Dividend (No. 32) on the Issued Capital of the Company at the rate of 2.4d. per Unit of Stock, less Income Tax at 9s. in the £. This Dividend which is in respect of the year ending September 30, 1953, to be payable on and after November 13, 1953, to all Stockholders on the Registers on October 2, 1953.

The Transfer Books will be closed from October 3, 1953, to October 12, 1953, both dates inclusive, for the preparation of Dividend Lists.

By Order of the Board,
E. W. MORGAN, *Secretary.*

Registered Address:
10 Old Jewry, London, E.C.2.

September 29, 1953.

DIVIDENDS

Anglo-Thai Corporation 20% (October 22)
Kepong Dredging 3d. *i*
North Kalgurli (1912) 31¼% (October 29)
Phoenix Mining and Finance 10%
Powell Duffryn 5%
Trinidad Petroleum Development 14¼% *
Yukon Consolidated Gold 6 c. (October 30)

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